CASE REPORT

Treatment of Internal Iliac Artery Pseudoaneurysm by an Endovascular Approach

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Pseudoaneurysms of the internal iliac artery are uncommon and are usually associated with trauma. We report the case of a 32-year-old man with a 15-day history of trauma to the abdomen and edema of the lower left limb. An arteriogram demonstrated proximal occlusion of the popliteal artery and a pseudoaneurysm in the internal iliac artery. Embolization of the pseudoaneurysm was performed using segments of guide wire that occluded the pseudoaneurysm, followed by proximal occlusion, which was accomplished using coils. An arteriogram after the procedure revealed adequate occlusion of the lesion. This association of guide wires and coils is a treatment option in cases of pseudoaneurysm of the internal iliac artery with large volumes needing to be occluded. [*J Chin Med Assoc* 2005; 68(9):435–436]

Key Words: coil embolization, internal iliac artery, traumatic pseudoaneurysm

Introduction

The Subcommittee on Reporting Standards for Arterial Aneurysms define an aneurysm as a permanent and localized dilatation of an artery with a diameter more than 50% of the expected size.[1] The wall of a pseudoaneurysm does not possess the same elements as an arterial wall and usually develops as a consequence of a hematoma that has a continuous communication with the lumen of the vessel over a period of time.[1,2] Arterial traumas are usually the main cause of pseudoaneurysm formation. Pseudoaneurysms of the internal iliac artery are uncommon and are usually associated with trauma.[3,4]

The development of the Gianturco-Wallace coil (Cook Inc, Bloomington, IN, USA) began with the use of mechanically twisted guide wires with a wool tip. An improvement resulted in the development of the "mini coil", which could be released by a catheter and then adopt different diameters. Vascular occlusion obtained using such coils is always permanent.[4]

This paper reports a method of treating pseudoaneurysms with arterial embolization using segments of guide wire and Gianturco-Wallace coils.

Case Report

We report the case of a 32-year-old man with a 15-day history of trauma of the abdomen and edema of the left lower limb. Duplex scan demonstrated the presence of proximal deep vein thrombosis, and the patient was anticoagulated with heparin and oral coumadin. After 15 days, he came to the emergency department complaining of pain in the abdomen. He was pallid and had a reduced temperature in the affected left lower limb. He had also lost tibial and popliteal pulses. An arteriogram showed proximal occlusion of the popliteal artery and a pseudoaneurysm of about 5 cm in diameter in the internal iliac artery (Figure 1). The occlusion of the popliteal artery was perhaps due to embolization induced by the trauma or to thrombocytopenia caused by heparinization, which was not evaluated at the time.

Embolization of the pseudoaneurysm was achieved by introducing a catheter into the internal iliac artery to deliver segments of guide wire to occlude the pseudoaneurysm, followed by proximal occlusion, achieved using Gianturco-Wallace coils. An arteriogram after the procedure revealed adequate occlusion of the

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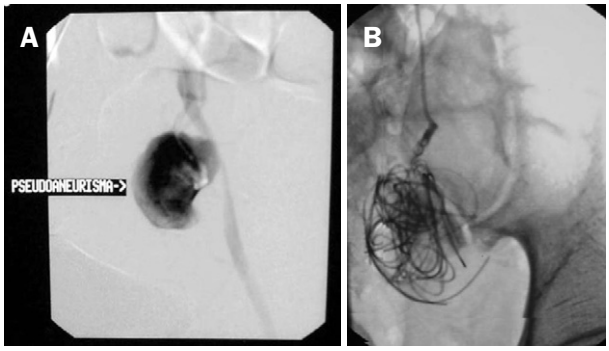

Figure 1. Arteriogram showing a pseudoaneurysm of the internal iliac artery before (A) and after (B) occlusion using segments of guide wires.

lesion (Figure 1). No side effects were evident. The patient attended follow-up visits to verify that there were no further complications.

Discussion

Penetrating injuries to the abdomen and especially deep gluteal injuries cause vascular and non-vascular injuries that necessitate emergency surgery.[4] Closed abdominal traumas can also cause injuries to the vessels, as in this patient, where an injury to the internal iliac artery occurred with the formation of a pseudoaneurysm. The literature suggests that surgical management is very difficult and exploration of iliac artery branch injuries is extremely difficult.[4,5]

Embolization is not always successful, and in these cases it is necessary to resort to surgery.[4] Embolization by transcutaneous catheterization was initially used to treat upper gastrointestinal bleeding, hemorrhage in the urinary tract, pelvic trauma, arteriovenous trauma, and hemoptysis. The development of new products and the improvement of techniques have transformed this into a viable alternative. Precise indications for embolization of pseudoaneurysms and the use of adequate materials has reduced complications and improved results.[2]

In the present case, the pseudoaneurysm in the internal iliac artery was occluded using segments of guide wire and Gianturco-Wallace coils. The guide wire segments were introduced initially, followed by complete occlusion accomplished using coils.

The combination of guide wires and coils is an option in pseudoaneurysms with large volumes that need to be occluded. These materials can permanently occlude vessels, providing definitive treatment for this type of case.

The advantages of an endovascular approach in this specific case reside in the probable difficulties of a surgical approach to the vessels in this region, especially after trauma, and the earlier recovery of the patient.

The small number of published reports in the international literature involving embolization of this artery and the difficulties encountered illustrate the importance of divulging these specific procedures.[4,5]

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